Opportunities for Developing Spatial Planning Capacity in East Kalimantan

August 2000

Technical Report

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David Craven
Spatial Planning and GIS Specialist

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This Technical Report was prepared by the Natural Resources Management/EPIQ Program's Protected Areas & Forest Management Team. The NRM/EPIQ PAF Team works with the Ministry of Forestry & Estate Crops and other stakeholders from Indonesia's conservation community and forestry sector to strengthen protected areas and forest management. Work includes promotion of co-management models such as partnerships and community-based forest management and community conservation agreements; raising awareness of conservation and sustainable development; improving conservation financing; and building institutional and human resource capacity.

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TECHNICAL REPORT

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BAKOSURTANAL	*Badan Koordinasi Survei dan Pemetaan Nasional* (National Coordinating Agency for Surveying and Mapping)
BAPPEDA	*Badan Perencanaan Pembangunan Daerah* (Regional Development Planning Agency)
BIPHUT	*Balai Inventarisasi dan Perpetaan Hutan* (Regional Forest Inventory and Mapping Office)
BPN	*Badan Pertanahan Nasional* (National Land Agency)
BPS	*Badan Pusat Statistik* (Central Statistics Agency)
CDP	Capacity Development Plan
CSF	Center for Social Forestry
DPRD	*Dewan Perwakilan Rakyat Daerah*(Regional Peoples' Representative Council)
EU	European Union
GIS	Geographical Information System
GPS	Global Positioning System
GTZ-IFFM	*Deutsche Gesellschaft fur Technische Zusammernarbeit* (German International Aid Agency) Integrated Forest Fire Management (Project)
HPH	*Hak Pengusahaan Hutan* (Forest Utilization Right)
INTAG	*Direktorat Jenderal Inventarisasi dan Tata Guna Hutan* (Dirctorate General for Inventory and Forest Use)
KEPPRES	*Keputuhsan President* (Presidential Decree)
LREP	Land Resources Evaluation Project
MREP	Marine Resources Evaluation Project
NGO	Non-Governmental Organization
NRM/EPIQ	Natural Resources Management (Program)
PP	*Peraturan Pemerintah* (Government Implementing Regulation)
RTRWP	*Rencana Tata Ruang Wilayah Propinsi* (Provincial Spatial Use Plan)
SHK	*Sistem Hutan Kerakyatan* – a Samarinda-based NGO
SPU	Spatial Planning Unit
TGHK	*Tata Guna Hutan Kesepakatan* (Consensus Forest Use Plan)
USAID	United States Agency for International Development
UU	*Undang-Undang* (Basic Law or Act)
WWF-KM	World Wildlife Fund – Kayan Mentarang (Project)

Opportunities for Developing Spatial Planning Capacity in East Kalimantan

Introduction

The move towards decentralization of authority and fiscal autonomy gives districts a much fairer share of the benefits to be gained from developing and exploiting their natural resource bases. At the same time, decentralization shifts much of the responsibility for managing natural resources from central government to local government. The districts of East Kalimantan must be prepared to shoulder this burden of responsibility in order to enjoy the benefits of greater local autonomy.

Good planning is crucial to productive and sustainable natural resources management. Current knowledge of what resources East Kalimantan has, how those resources are distributed, what condition they are in, what potential they offer, and how and by whom they are currently managed is very limited. Spatial planning is intended to help fill that knowledge gap, and with sufficient resources dedicated to preparing and implementing spatial plans, the tool could indeed be very powerful. This being the case, why is it that spatial plans generally do not provide the types of information or the levels of detail decision makers need to plan and manage natural resources development equably and sustainably? And what can be done to support efforts to develop spatial planning capacity towards meeting these goals?

The United States Agency for International Development (USAID)-funded Natural Resources Management/EPIQ (NRM/EPIQ) Program contracted a Spatial Planning and Geographical Information Systems (GIS) Specialist to look for answers to these questions with specific reference to the current situation in two districts in East Kalimantan – West Kutai and Kutai. The consultant worked for 58 days reviewing reports, maps and other planning documents, talking to government officials, representatives of Non-Governmental Organizations (NGOs) and private companies and other members of the community, and participating in workshops and seminars in Samarinda, Tenggarong and Melak. He also conducted a number of field visits to assess conditions on the ground, particularly as they relate to the impression given by the maps currently being used for spatial and other types of planning. A detailed account of the tasks and activities conducted under this consultancy is given in the first chapter of this report.

Chapters 2 - 4 present the results and conclusions drawn from the consultancy. Chapter 2 describes the current status of spatial planning at province level for East Kalimantan and at district level for West Kutai and Kutai. Chapter 3 discusses reasons why effective spatial planning is currently not being done in the two districts. The major constraints concern the size of the districts and accessibility both to and within them, the availability

and quality of spatial data, and the capacity of the institutions responsible for conducting spatial planning. Chapter 4 describes the parts of the long term strategy districts need to pursue if they are to improve the quality of spatial planning in the future. To this end the chapter discusses the need to: define the scope and objectives of district level spatial planning; determine what human and technical resources will be needed to meet those objectives; assign institutional roles and responsibilities for various elements of the planning process; develop and implement effective participatory planning mechanisms; and, access the funds needed to do spatial planning more effectively.

Chapters 5 and 6 lay the foundation for on-going efforts to develop spatial planning capacity in East Kalimantan. Chapter 5 presents a draft work plan proposed by the consultant to meet West Kutai district's short term goal to produce its first spatial plan. Based on the objectives, constraints and needs discussed in this and earlier chapters, Chapter 6 suggests specific areas in which the NRM/EPIQ Program could continue to support efforts to build spatial planning capacity in West Kutai and Kutai.

1. Consultant's Tasks and Activities

The Spatial Planning and GIS Specialist conducted this initial 58-day input between 16th May and 19th August, 2000. During this period he spent approximately 48 days in East Kalimantan and 10 days in Jakarta. Tasks assigned to the consultant and activities he carried out to perform those tasks are described below. The tasks are taken from the Terms of Reference for the assignment.

Task 1 - Collect and organize existing resource and resource use maps dealing with but not limited to forestry, spatial planning and *adat* resource claims in East Kalimantan with a specific focus on two district, West Kutai and Kutai.

The consultant assembled a large collection of maps which are now housed in a purpose-built map case at the NRM/EPIQ Kalimantan Timur office in Samarinda. Wherever possible NRM/EPIQ acquired two copies of each map and delivered one set to *Badan Perencanaan Pembangunan Daerah* (BAPPEDA), the regional development planning agency in West Kutai district, which until recently had no maps of its own. The collection includes a wide range of reference and thematic maps at various scales representing different levels of detail. Though many sources remain to be tapped, NRM/EPIQ's current holdings comprise over 70 map sheets. The consultant prepared a directory of the map holdings and as part of a follow-up consultancy he proposes to publish a map catalog and distribute it throughout the region to make the collection accessible to all interested parties.

The map collection is comprised of two types of maps – reference maps and thematic maps. Reference maps are also called topographic or base maps. Information typically shown on reference maps includes natural features such as coastlines, rivers, lakes, reservoirs, watershed boundaries, contour lines and spot elevations. Man-made features such as administrative boundaries, roads, other infrastructure (bridges, dams, airports, shipping terminals, irrigation and drainage canals, etc.), and settlements are also usually shown. Thematic maps show the distribution of a particular characteristic or theme. Examples include soil types, land cover/land use, rainfall, geology, the locations of mineral deposits, forest status boundaries and management or tenure boundaries for parcels designated or claimed as logging concessions, timber and non-timber plantations, *adat* areas or national parks.

As well as assembling and organizing a collection of printed maps, the Spatial Planning and GIS Specialist also compiled a large digital database of mapping data. Sources for these data include the *Deutsche Gesellschaft fur Technische Zusammernarbeit* Integrated Forest Fire Management (GTZ-IFFM) project, World Wildlife Fund Kayan Mentarang (WWF-KM), the Center for Social Forestry (CSF) at Universitas Mulawarman, PT. Blom Nusantara, and the national mapping agency, BAKOSURTANAL. Much of the data was digitized from the maps in the printed collection, but often the primary source is unclear. Another task for a follow-up consultancy will be to organize the digital data,

verify sources to the extent possible, and publish a CD and data dictionary for distribution.

Satellite imagery is a third type of spatial data which is invaluable to spatial planners, particularly in large remote regions such as the interior of East Kalimantan. Though cloud-free coverage is notoriously hard to obtain for equatorial areas, the Landsat 7 system captured two reasonably clear scenes on 16th July 2000, and the consultant has ordered both digital and printed copies of these scenes for NRM/EPIQ and its partners. The data are currently being processed by PT. Blom Nusantara in Jakarta and they will be available by the end of August. The imagery should provide an excellent picture of current land cover conditions over a large part of West Kutai and Kutai districts.

Task 2 – Standardize the maps in an over-laid presentation form in order to depict the current situation of natural resources management based on various stakeholders' perspectives.

Analyses of the printed and digital maps provide interesting insights into some of the crucial issues facing East Kalimantan's spatial planners and other natural resource stakeholders. The example shown in Figure 1.1 shows that 22,100km² or 64% of West Kutai district has been parceled out to logging concessionaires (HPH).

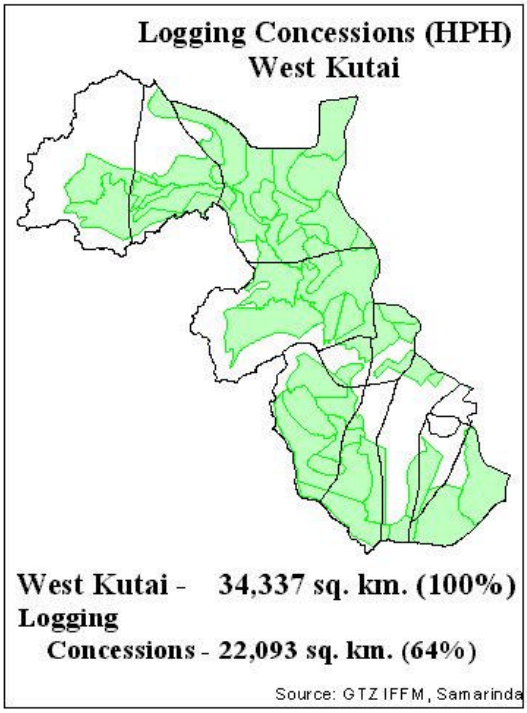

Figure 1.1 - Logging Concessions in West Kutai District

This figure is interesting in itself as an indication of the massive scale of commercial logging in the district; it becomes more interesting when the concession boundaries are overlaid onto a 1995 map showing forest status boundaries (Figure 1.2). This analysis suggests that only 62% of West Kutai's 22,093km² of logging concessions is on land designated Forest Area (*Kawasan Hutan*) in the spatial plan. Of the concession land outside the Forest Area, 11% is in Protection Forest (*Hutan Lindung*), 2% is in National Parks (*Taman Nasional*) or Strict Nature Reserves (*Cagar Alam*), and 25% is on land designated Non-Forestry Cultivated Area (*Kawasan Budidaya Non-Kehutanan*). Though these figures are based on out-of-date and un-verified data, they do suggest some serious discrepancies between planned and actual land use patterns, and they should prompt immediate investigation from forestry and planning authorities in West Kutai to verify the situation and take steps to address it.

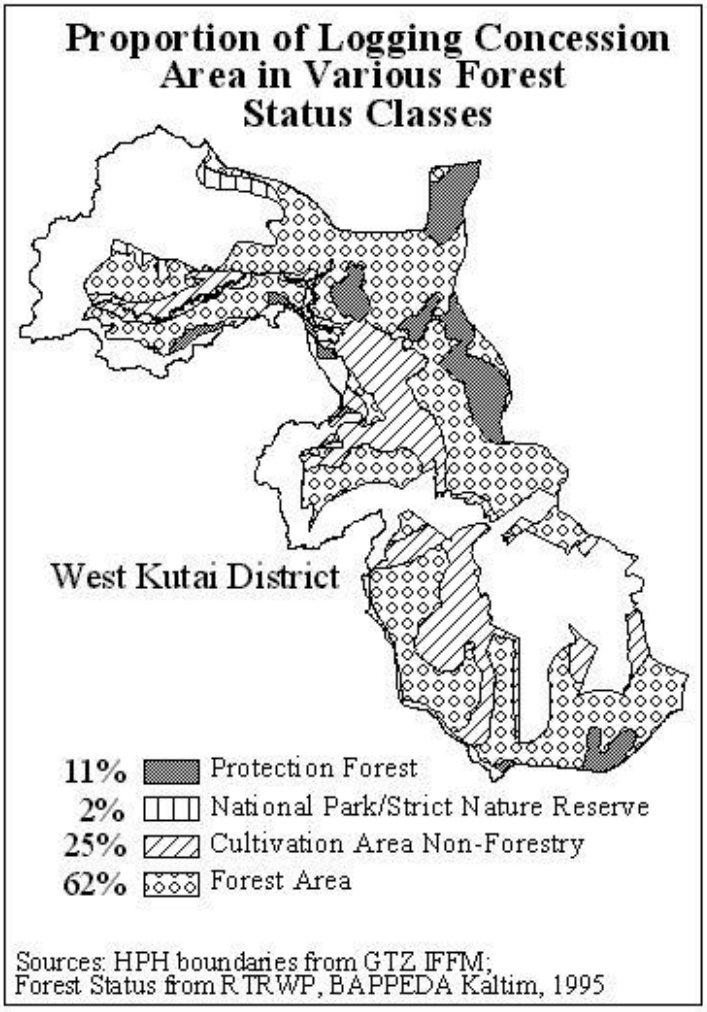

Figure 1.2 - Proportion of Logging Concession Area in Various Forest Status Classes, West Kutai District

Other examples of spatial analyses conducted as part of this consultancy are illustrated elsewhere in this report. Figure 3.1 on page 17 (Roads and Major Rivers of West Kutai) clearly shows the very limited extent of West Kutai's road network, a serious constraint to spatial planning and, according to officials in the Bupati's office and in BAPPEDA in Melak, an even more serious constraint to regional development. The limited availability of accurate base maps for West Kutai is illustrated in Figure 3.2 on page 19 (*Peta Rupa Bumi* Coverage of West Kutai). Figure 3.3 on page 21 shows data taken from two different base maps in relation to the results of a survey the consultant conducted along a 140km stretch of the Mahakam River. Clearly one of the maps is more accurate than the other, and unfortunately many of the thematic maps the consultant collected for NRM/EPIQ are based on the less accurate reference map.

Though the spatial analyses described and illustrated in this report provide interesting and potentially useful insights, what they reveal most clearly is that the poor quality of spatial data holdings in East Kalimantan, and especially in West Kutai, is a major constraint to effective spatial planning in the region. This does not mean that spatial plans cannot be drawn and should not be used, but it severely limits the scope of those plans and means that they should not be used as the definitive and authoritative land use planning documents they are intended to be.

Task 3 – Facilitate planning workshops at the district, provincial and national level, using the maps to elucidate resource uses and conflicts, and to start a process of conflict resolution and clarification of roles and responsibilities regarding natural resources management.

During this consultancy the Spatial Planning and GIS Specialist facilitated two workshops and participated in several others. The first workshop was held in Samarinda on July 11th and 12th. The purpose of the workshop was to discuss the potential role of community or participatory mapping in the spatial planning process. More than 80 participants enjoyed presentations from 8 groups involved in some way in community mapping. The presenters represented NGOs, the CSF at Universitas Mulawarman and BPN, East Kalimantan. Group discussions addressed the major technical and institutional issues involved and tried to determine what resources would be required to conduct community mapping on a large enough scale for it to be useful as a source of input data for spatial plans.

Conclusions drawn from the workshop suggest that, though community maps are very important for helping individual communities address their own specific needs and interests, their potential role in spatial planning is limited by a number of factors. Lack of standardization, the fact that community mapping programs tend to be "special interest" rather than "systematic" in approach, and the sheer size of the area that needs mapping were the major barriers. Whilst these problems certainly make the traditional approach to community mapping of little value to spatial planners, workshop participants discussed

new approaches that might be more useful. These include preparing more general maps for larger areas than the village (*desa*) which is usually used to define a community, collaboration between communities, NGOs, BPN, BAPPEDA and other government mapping agencies to try to develop a more systematic approach to community mapping, and conducting pilot studies to test some of the new ideas approaches. The consultant and his colleagues at NRM/EPIQ are preparing proceedings of this workshop. Hopefully these can be completed as part of a follow-up consultancy some time in September.

The second workshop the consultant helped facilitate and actively participated in was held in Melak, West Kutai district, on August 14th and 15th. The purpose of this workshop was to evaluate proposals from consulting groups to prepare the district's first general spatial plan (*Rencana Tata Ruang Umum Kabupaten*). The consultant was a member of the evaluation team which also included the head of BAPPEDA, his physical and infrastructure section chief, and the Bupati. Four consulting groups presented their proposals and participated in question and answer sessions with representatives of local government, NGOs and local communities. Participants were actively encouraged to help in the selection process by being asked to complete a score sheet for each of the four groups. Selection criteria included technical competency, experience, responsiveness to questions and requests for clarification, and the content, quality and relevance of the material presented by each group. The Spatial Planning and GIS Specialist submitted a written evaluation to the Bupati two days after the workshop in which he described the relative strengths and weaknesses of the consulting groups and made a recommendation as to which group would best serve the needs of the West Kutai community. The contract will probably be awarded before the end of August.

In addition to playing an active role in the two workshops described above, the consultant participated in a workshop on the implications of decentralization for natural resources management at village level (Melak, 29th/30th May), a public presentation and discussion of West Kutai's 2001 development plan (Melak, 21st June), and a workshop to discuss the final draft of East Kalimantan's revised spatial plan (Samarinda, 29th June). Issues raised and conclusions drawn from these workshops are discussed in subsequent chapters of this report.

Task 4 – Produce a final report including recommendations for adapting this participatory planning mechanism to other regions, and include specific recommend-ations on improved management and sharing of relevant maps, data sets and management plans.

This document meets the requirement to produce a final report. Recommendations for instituting participatory planning mechanisms and improved data management are presented in Chapters 4 and 6.

2. The Current Status of Spatial Planning in East Kalimantan

This chapter provides background on the concepts, legal basis and current status of spatial planning in East Kalimantan. Following a general discussion of the rationale behind spatial planning and the purposes it is intended to fulfill, two sections describe recent and on-going spatial planning efforts at province and district levels. For the latter, the scope of the consultancy and of this report is limited to two districts – West Kutai and Kutai.

2.1 What is "Spatial Use Planning"? – Objectives, Scope, Rationale

The term "spatial use planning" refers to the range of activities local authorities conduct to help them determine future uses of land, water and living resources within their respective jurisdictions. These activities include surveying, mapping, zoning and allocating land to various uses. Spatial use planning, or spatial planning as it is more often called, was introduced in Indonesia in 1992 with the Spatial Use Management Law (*Undang Undang* or *UU* 24/1992). A number of government laws and regulations enacted since 1992 have clarified and elaborated on the provisions made in UU 24/1992. Table 2.1 lists legislation enacted since 1992 that is most relevant to spatial planning.

The rationale behind this legislation is to provide the legal basis for local government units to coordinate land use and other types of planning within their jurisdictions. The enactment of the laws and regulations represents acknowledgement of the failure of traditional approaches to planning in Indonesia. Typically these were (and continue to be) highly centralized and sector-based, with special interests usually prevailing over the general development needs of a province or a district. Rarely were local stakeholders consulted about the intentions of the forestry or the mining or the public works sectors; seldom did those sectors collaborate with each other in an effort to develop integrated regional or spatial plans.

According to recent reviews of forestry sector policy issues (Sève, 1999) and spatial planning in the provinces (Jarvie, 1999), Indonesia's spatial planning legislation tries to address these problems with provisions for:

- ?? Devolving much of the authority for classifying and gazetting land to local authorities;
- ?? Calling for community consultation and involvement in the spatial planning process;
- ?? Recognizing the right to compensation for losses caused by competing or conflicting development activities;
- ?? Calling for inter-sectoral coordination in the determination of land use;

?? Delegating responsibilities for forestry activities related to soil conservation and social forestry to district authorities.

Insofar as they provide a general sense of direction for spatial planners in the regions, these policy objectives are consistent with current moves towards decentralization and local autonomy. They support the widely held views that managing natural and other resources is better done locally than centrally, that the public has a right to participate in planning processes, and that planning must be region- rather than sector-based if resources are to be managed sustainably, equably and efficiently.

No.	Title	English Translation
UU 24/1992	*Tentang Penataan Ruang*	About Spatial Use Planning
KEPPRES 75/1993	*Badan Koordinasi Tata Ruang Nasional*	Coordinating Body for National Spatial Planning
PP 69/1996	*Tentang Pelaksanaan Hak dan Kewajiban Serta Bentuk dan Tata Cara Peranserta Masyarakat Dalam Penataan Ruang*	About Rights and Obligations and the Nature of Community Participation in Spatial Use Planning.
UU 22/1999	*Tentang Otonomi Pemerintah Daerah*	About Local Government Autonomy
UU 25/1999	*Tentang Perimbangan Keuangan Pusat dan Daerah*	About Intergovernmental Fiscal Balance
UU 41/1999	*Kehutanan*	Forestry
UU 47/1999	*Tentang Pembentukan Kabupaten Nunukan, Kabupaten Malinau, Kabupaten Kutai Barat, Kabupaten Kutai Timur, dan Kota Bontang*	About the Formation of Nunukan, Malinau, West Kutai and East Kutai Districts, and the Municipality of Bontang
PP 10/2000	*Tentang Tingkat Ketelitian Peta Untuk Penataan Ruang Wilayah*	About the Level of Mapping Detail for Spatial Planning

Table 2.1 - Recent Legislation Relevant to Spatial Planning in East Kalimantan

In efforts to move towards meeting the general policy objectives described above, most provinces and districts in Indonesia are now trying to implement spatial planning programs. The first challenge they face is to more narrowly define the scope and objectives of spatial planning within the general legislative framework. Examples from terms of reference[1] received from BAPPEDA in Melak give some indication of how local authorities hope to benefit from spatial planning. According to this document district level spatial plans are intended as references for:

- ?? Formulating policies and regulations to guide spatial (land) uses;
- ?? Promoting integrity, interdependence, balance and sectoral harmony in inter-district development plans and initiatives;
- ?? Guiding the location of public and private investments;
- ?? Developing spatial plans at sub-district levels.

Most of these statements are again quite vague, defining the intended purposes of spatial planning only in very general terms. However, the third statement is different in that it calls for spatial plans to provide answers to a very specific question – where should investors be looking for opportunities to spend their money? This is the most narrowly defined goal and it is the one cited most frequently by district heads and planners as being the main focus of their spatial planning efforts. As stated the goal is reasonable, and the spatial plans currently being produced in East Kalimantan can be used, to a limited extent, to help *guide* investors. But in practice spatial plans are being used in an entirely inappropriate way as a basis for issuing permits that give companies access and use rights over land, forest and mineral resources.

There is a huge gulf between the quality of maps needed for this purpose and the quality of maps spatial planners are currently producing in East Kalimantan. Delineating legal boundaries and issuing permits on the basis of lines of questionable accuracy drawn on 1:1,000,000-scale maps are unacceptable practices from both technical and ethical points of view. Site-specific land management of this kind is way beyond the scope of the spatial planning capacity that exists in East Kalimantan today. It is one of the main reasons there are so many conflicts over access, use and management rights in the province. Small-scale, highly generalized maps can provide useful information for regional development planning applications such as comparing socio-economic indicators or estimates of timber resources in different districts. They may even be useful for guiding investors *towards* areas that *may* offer opportunities for resource development. But they should never be used for land use planning, and they should never be considered to be authoritative representations of administrative, concession, national park, *adat* claim, or any other kinds of boundaries.

A second challenge for local authorities is to establish the technical, institutional and financial mechanisms needed to meet the stated objectives. This

[1] The document is entitled "*Kerangka Acuan Kerja/TOR, Rencana Tata Ruang Wilayah Kabupaten (Revisi)*" and is dated 2000, but it gives no indication of who the publisher is.

Because all administrative areas are physically, socially and economically different, and because needs and aspirations vary from one administrative area to another, the scope of spatial planning and the mechanisms for doing it effectively will also vary from place to place.

2.2 Province Level Spatial Planning

Though the primary purpose of this report is to address spatial planning issues at district level, the relationship between Indonesia's provinces and districts in this regard is so close that issues affecting the two levels cannot be discussed independently. Province and district plans should be integrated and consistent, and currently the more fully developed provincial plans provide the framework and much of the data used for planning in the districts. Furthermore, district BAPPEDA rely heavily on their provincial counterparts for technical support and coordination with different government agencies and other stakeholders. As authority and resources are devolved to more local levels it is likely that the role of the districts will strengthen and spatial planning will become more of a bottom-up process. Current circumstances however dictate that provincial BAPPEDA will continue to play the leading role for some time to come, and therefore this section presents a summary of recent spatial planning initiatives for the province of East Kalimantan.

East Kalimantan has produced several spatial plans in the last 8 years. Though the sequence is not well documented, it seems that the province published spatial plans in 1992, 1995 and 1997, and it hopes to publish a new plan before the end of this year. In mapping terms all the spatial plans published to-date have focused on updating Consensus Forest Use (*Tata Guna Hutan Kesepakatan* or *TGHK*) maps. An example showing a sub-set of the 1995 provincial spatial plan map covering West Kutai is shown in Figure 2.1. Though an important part of any spatial plan, forest status maps do not by themselves provide the comprehensive spatial picture needed to plan an administrative area's physical, social and economic development. As discussed in Chapter 3, the sole reliance on original or updated TGHK maps is a major constraint to effective spatial planning.

In 1997 BAPPEDA updated the spatial planning map for East Kalimantan from which Figure 2.1 was taken. The revised map falls short of meeting the requirements for an integrated spatial planning document by again presenting only a very general representation of forest status boundaries with no indication of present land cover. Colleagues who have taken this map to the field report major discrepancies between the information presented on the map and conditions on the ground. For example, areas classified as Protection Forest (*Hutan Lindung*) being exploited by private logging companies, and Forest Areas (*Kawasan Hutan*) that are being intensively cultivated by people who have clearly lived there for many years. The map shows the current distribution of various forest status categories, but it does not indicate any options or proposals for future changes. The classification system is not consistent with schemes outlined in the legislation, and the map is not dated.

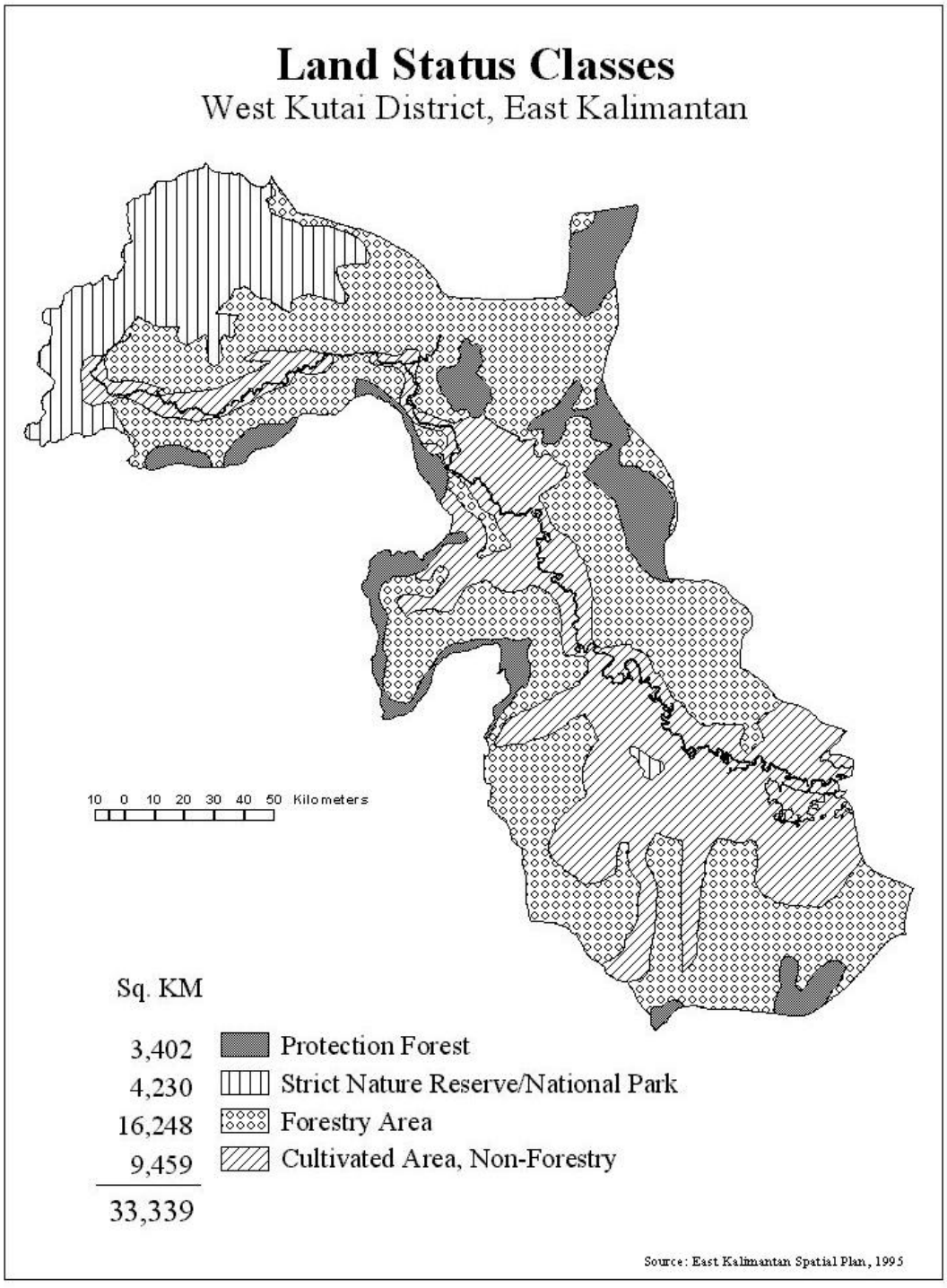

Figure 2.1 - Land Status Classes in West Kutai

As in the past, BAPPEDA has recently contracted a consulting firm to update its spatial plan. The firm currently under contract to do this work is PT. Indulexco which has a branch office in Balikpapan. Much of the spatial analysis and mapping work is being done by technicians at Hasanuddin University in Makassar, South Sulawesi. PT. Indulexco presented the final draft of the new spatial plan at a meeting in Samarinda on 29th June 2000. The following is a summary of the observations the Spatial Planning and GIS Specialist drew from this meeting.

?? The meeting was well attended and the debate lively. Participants welcomed the opportunity to review the latest draft of the spatial plan and provide input to it. They were invited to submit their comments to BAPPEDA in writing. The public meeting and the request for written comments are good examples of participatory planning mechanisms.

?? The Regional Peoples' Representative Council (*DPRD*) for East Kalimantan province was invited to send representatives to the meeting but they did not attend. This was unfortunate because the DPRD must play an active role in the spatial planning process if it is to become more open and accountable than it has been in the past. The fact that BAPPEDA issued the invitation is an encouraging indication of that agency's commitment to the new approach.

?? The technical consultants confirmed that the spatial plan is not based on an assessment of the distribution and condition of existing land cover. This is because recent land cover data for most of East Kalimantan do not exist. A number of groups are exploring ways of filling this information gap. For example the GTZ Public/Private Partnership project is testing radar for land cover mapping, and the EU Berau Forest Management Project plans to map the entire province within a year by combining data from several different remote sensing sources. But the fact remains that at present there is no sound basis for spatial planning for large areas of East Kalimantan because we do not have a clear understanding of actual conditions on the ground.

?? There is still great confusion about the scope of spatial planning at various levels. On the positive side, the maps presented at this workshop suggested that spatial planning is now being seen as more than simply a mechanism for publishing the latest version of a forest status map. On the other hand, the technical consultants presented results of suitability analyses they had conducted for a number of land uses including perennial crops, dry land agriculture, wet land agriculture, fisheries and livestock rearing. The analysis was based on small-scale, incomplete and out-of-date data sets, and its relevance to province-level spatial planning is extremely tenuous. As general guides as to where certain activities might be most appropriate, the suitability maps may have some value, but how this type of information addresses the needs of province-level spatial planners is not at all clear.

?? Terminology is another source of confusion, especially as far as forest status is concerned. Several workshop participants questioned the terms used to define forest status classes, complaining that they were not consistent with current regulations and represented a confusing mix of TGHK and Padu Serasi terminology. It seems the consultants based their classification system on data they had received from BAPPEDA, and that they had neither the time nor the resources to search for alternative sources.

?? The previous point is indicative of a general weakness in the approach to spatial planning whereby data are compiled in a hurry from the first available source, with insufficient attention being paid to seeking out and evaluating data from different sources. Participants expressed general dissatisfaction at the level of consultation during the planning process, and some were concerned that their own data, which they considered to be authoritative and relatively accurate, had not been incorporated into the plan. Clearly better mechanisms for data sharing are needed if spatial planning is to become more effective and more useful.

These criticisms are not intended to denigrate the skills or dedication of BAPPEDA staff, or those of the consultants hired to produce the map. They are made to illustrate the extent to which to spatial planning in East Kalimantan is severely limited by both the size of the province and the dearth of quality spatial data describing its human and physical characteristics. BAPPEDA readily acknowledges this problem and is committed to working with other stakeholders in the province to find ways of overcoming it.

2.3 District Level Spatial Planning

This section describes the current status of spatial planning in West Kutai and Kutai districts. Kutai published a spatial plan for the district in 1998. The plan was prepared by Pt. Teknoplan Nusantara, a consulting firm based in Bandung. BAPPEDA in Kutai is currently preparing a detailed spatial plan for the Mahakam delta. It intends to update its district spatial plan next year to take into account the division of Kutai into three new districts – West Kutai, East Kutai and Kutai itself.

West Kutai district has never produced its own spatial plan – it has only existed as an independent administrative area since UU 47/1999 divided Kutai into three new districts in late 1999. However, the 1998 Kutai spatial plan described in the previous section included the territory now administered by the three new district governments, including that of West Kutai. Though the spatial data in this plan was largely gleaned from provincial sources and is therefore very general, it will provide a basis for updated and more detailed maps in future West Kutai plans. The first of these is scheduled for publication in December of this year.

Earlier this year West Kutai did publish a detailed spatial town plan for the district capital, Sendawar (Melak). The government of West Kutai, BAPPEDA from Kutai and the technical consulting firm Pt. Trijasa Bina Manunggal from Samarinda collaborated to produce the plan. Though it only covers a very small area of West Kutai, the spatial plan for Sendawar will serve as a useful model on which to base the first plan for the district, and it does contain some general district-wide data that may also be of value.

Though UU 24/1992 and its supporting enabling legislation have defined a framework for spatial planning they are proving to be too general and too open to interpretation to be particularly useful for practical applications, particularly at district level. In its implementation spatial planning is still confused and not very effective. A number of policy and implementation reviews (for example, Jarvie, 1999; Fox, 1999; Brown and Jarvie, 1998) suggest that the main reasons for this stem from:

- ?? The limited authority of spatial plans in relation to strong public and private sector interests;
- ?? Unrealistic technical specifications with regard to the contents, scale and level of detail in spatial plans;
- ?? Confusing and vague terminology, especially with regard to forest status and land use classification;
- ?? Limited institutional capacity to carry out spatial planning work;
- ?? Lack of consistent, up-to-date and accurate spatial information, especially concerning base maps and on forest status maps.

These constraints are discussed in detail with respect to West Kutai and Kutai districts in the next chapter.

3. Constraints to District Level Spatial Planning in East Kalimantan

This chapter describes the factors currently limiting the effectiveness of district level spatial planning in East Kalimantan. The planning constraints are grouped into five categories – size and accessibility, availability of spatial data, quality of spatial data, institutional issues and technical capacity. Though the chapter focuses largely on East Kalimantan, and specifically on the two districts of West Kutai and Kutai, many of the issues raised apply to a greater or lesser degree in districts across Indonesia.

3.1 Size and Accessibility

Spatial planning in East Kalimantan is challenging simply because there is so much space to plan for. As shown in Table 3.1, East Kalimantan's districts are the size of small countries – West Kutai is bigger than Belgium; Kutai covers more territory than Rwanda – and in total area the province is not much smaller than Great Britain (England, Scotland and Wales). To map this territory in sufficient detail for spatial planning will require inputs of human, technical and financial resources at far higher levels than have previously been available.

Administrative Area (sq. km.)[2]		Similar in Size to…(sq. km.)[3]	
Berau	24,201	Belize	22,966
Bulungan	18,754	Fiji	18,272
Kutai	27,263	Rwanda	26,337
West Kutai	31,629	Belgium	30,513
East Kutai	35,747	Taiwan	36,185
Malinau	42,621	The Netherlands	41,160
Nunukan	13,842	Bahamas	13,939
Pasir	14,937	Vanuatu	14,763
Municipalities	2,446		
East Kalimantan	**211,440**	**Great Britain**	**230,372**

Table 3.1- Area Comparisons of East Kalimantan and its Districts

The inaccessibility of huge portions of East Kalimantan compound problems associated with the size of the territory. Even if a large, skilled and well-equipped labor force were available, the remoteness and ruggedness of large portions of the region represent

[2] Source: *Draft Program Pembangunan Daerah Propinsi Kalimantan Timur, Tahun 2001-2005*, Government of East Kalimantan Province, Samarinda, 2000.
[3] Source: *Atlas of the World*, Concise Edition, Hammond, Maplewood, New Jersey, USA, 1994.

significant constraints to any serious surveying and mapping effort. Figure 3.1 shows the two main transportation networks in West Kutai district – roads and rivers. The internal road network is clearly very limited – most people use the more extensive river network and move around the district by boat. It is equally clear from this map that the district has no roads connecting it to the rest of the province – not only is it difficult to move around West Kutai internally, it is hard to get to the district in the first place.

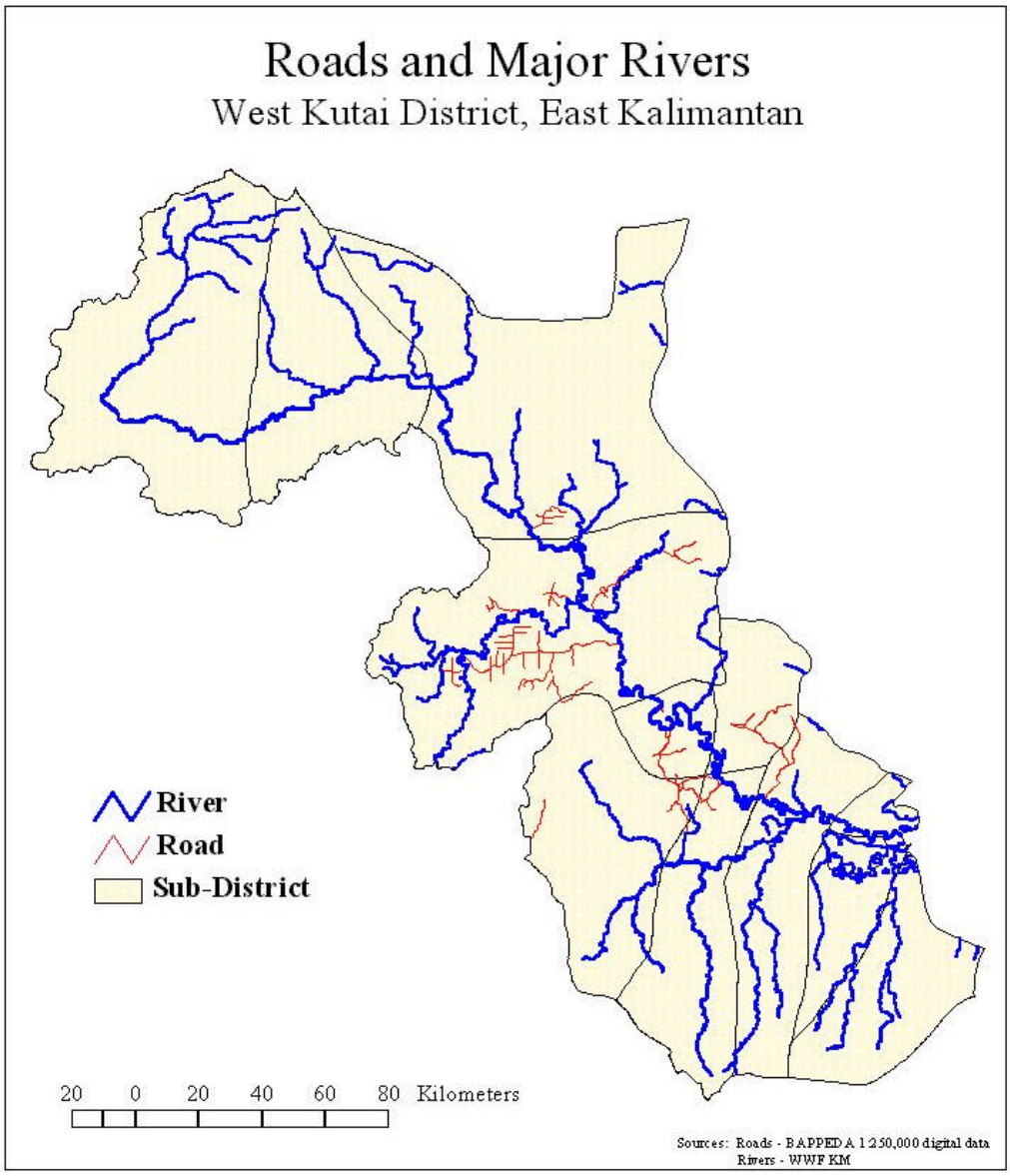

Figure 3.1 – Roads and Major Rivers in West Kutai District

3.2 The Availability of Spatial Data

Spatial planners have to ask two questions to determine whether or not spatial data are available. The first question is "do the data I am looking for exist?" Unfortunately for large parts of East Kalimantan the answer to this question is often "no". If useful spatial data do exist, meaning that they have been mapped by someone, the second question is then "do I have access to those data?", or in other words, "are the maps available to me?". The cumbersome bureaucracy and a general reluctance among institutions and individuals to share information are frequently cited as excuses for the poor quality of spatial planning in Indonesia. In the parts of the country that are relatively well mapped these excuses may be perfectly valid. But West Kutai is not well mapped, and the biggest constraint to effective spatial planning in the district is that, at the current time, accurate, detailed and up-to-date maps simply do not exist – they have never been made.

The two most important types of maps for any spatial planning exercise are base maps and maps showing present land cover. As used in this report, the term "base maps" refers to topographic or reference maps such as the *Peta Rupa Bumi* produced by BAKOSURTANAL. The standard features drawn on base maps includes contours and spot elevations, coastlines, rivers, lakes, settlements, administrative boundaries, roads, railroads, and often other man-made features such as airports, shipping terminals, pipelines, electricity transmission lines and important buildings. Another key feature shown on all base maps is a coordinate grid. As the term implies, base maps provide a geographically referenced framework to which other types of spatial information from various sources, at different scales and in different formats, can be tied.

BAKOSURTANAL has produced *Peta Rupi Bumi* for approximately 30% of West Kutai district. Of the 65 sheets required for full coverage at 1:50,000-scale, 21 have been published(Figure 3.2). At 1:250,000-scale, 2 of the 8 sheets required for full coverage have been produced. It is not realistic to anticipate that maps from this series will be published for the rest of West Kutai in the near future, so other sources of base maps will have to be tapped.

Frequently used examples include the RePPProT series, also produced by BAKOSURTANAL, INTAG's Forest Vegetation and Land Use maps, TAD Base Maps published by the provincial BAPPEDA for East Kalimantan, and a series of geological maps produced by the Geological Research and Development Center in Bandung. These alternatives provide more complete coverage of the district and as such they are useful supplements to *Peta Rupa Bumi.*

After base maps, accurate, detailed and up-to-date land cover maps showing the current state and extent of vegetative cover on the ground are the second most important inputs for spatial planning. The primary purpose of a spatial plan is to guide the use of land and other natural resources from the current state (A) towards some pre-determined ideal or more desirable state (B). To determine how to get to B it is essential to start with a clear

and accurate understanding of state A. Again land cover in West Kutai has not been mapped recently, and in fact recent and reliable vegetation maps are not generally available for this part of Indonesia (Siegert and Hoffmann, 2000).

Though some good vegetation maps have been produced recently, none of them provide sufficient detail over large enough areas to meet West Kutai's spatial planning requirements. For example, maps published by the GTZ-funded Integrated Forest Fire Management (GTZ-IFFM) Project provide an excellent general picture of vegetative cover for the parts of East Kalimantan affected by the 1997/8 fires, but this includes only about 30% of West Kutai district. For their intended purpose of estimating the physical and economic damage caused by the fires the GTZ-IFFM maps are very good, but for spatial planners in West Kutai they are of limited value.

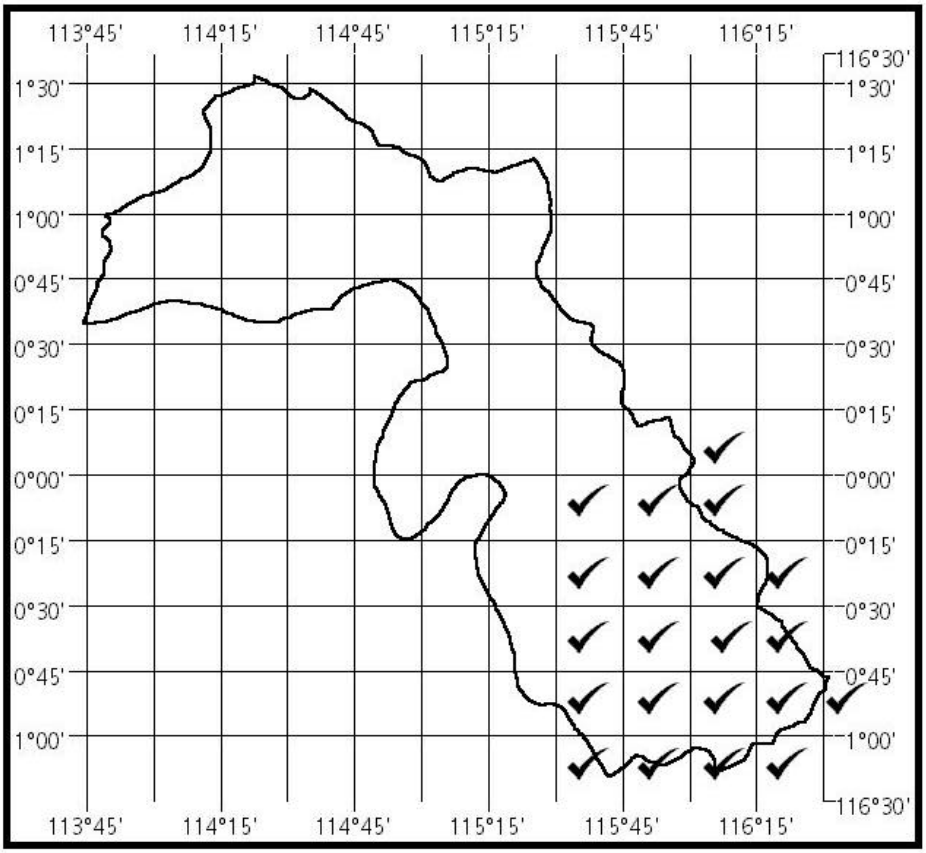

Figure 3.2 – Peta Rupa Bumi Coverage of West Kutai District

Land use and vegetation maps produced by local communities can provide the detail needed for local level spatial planning, but their value is extremely limited at present because of a number of constraining factors. First, relatively few communities in the region have produced maps, so most of East Kalimantan remains un-mapped. Based on papers presented at the participatory mapping workshop held it Samarinda in July, approximately 90 villages have produced community maps. The total number of villages

in the province is not clearly established – 1,151 according to BPS, 1,242 according to CSF – but even with this uncertainty it is quite clear that less than 8% of the province has been mapped at village level. Even with the intense mapping activity communities are currently engaged in, the sheer size of East Kalimantan's uncharted territory means that it will be a long time before community maps can be generally useful to spatial planners.

Second, the scope and objectives of community mapping and spatial planning are quite different. Community maps are produced for small areas and with very specific purposes in mind. On the other hand, spatial plans cover large areas and address more general development needs.

Finally, the lack of standardization in community maps is another problem that will have to be overcome if they are to provide useful input to spatial planning. Standards for surveying techniques, scale, accuracy, level of detail and terminology are all important in a systematic mapping program, and in recent and ongoing participatory mapping efforts in East Kalimantan these are lacking.

While these constraints limit the extent to which the two levels of mapping can be mutually supportive at present, there are a number of opportunities for testing ideas and developing new approaches to strengthen the relationship between them. Examples in include conducting pilot studies to test and develop techniques for producing standardized community maps over large areas, promoting collaboration among communities, NGOs and government mapping agencies to define an agreed set of standards for community maps, and identifying more active roles for local communities in the spatial planning process. SHK is already supporting a pilot study to produce a community map for 8 contiguous villages in a sub-watershed in Damai, West Kutai, and mechanisms for public participation in spatial planning are being introduced in many areas. If efforts like these are successful it may be possible to develop techniques and establish procedures whereby communities can produce maps that meet both their own needs and the needs of the spatial planners.

3.3 The Quality of Spatial Data

Problems associated with the generally poor quality of the spatial data that do exist for Indonesia have been well documented and are well known. Most of the maps currently available are old, small-scale, lacking in detail and inaccurate – they do not show the true distribution and condition of the country's natural resources, nor can they be considered accurate and authoritative representations of administrative, ownership or management boundaries.

The example presented in Figure 3.3 shows two maps of the same reach of the Mahakam River to the west of the Mahakam Lakes. The rivers and lakes on the left hand map are taken from digital data obtained from BAKOSURTANAL; those on the right hand map

are based on JANTOP topographic maps. The point symbols on both maps represent real world coordinates recorded with a GPS receiver during a boat journey down the river. Two interesting conclusions can be drawn by comparing the two maps. First, the BAKOSURTANAL map is clearly more accurate. The GPS points closely follow the course of the river and never deviate by more than 100 meters from it. The river on the JANTOP map on the other hand generally follows a course between 1 and 2 km south of the true course defined by the GPS coordinates. Second, the BAKOSURTANAL map provides more detail than the highly generalized JANTOP map. This is evident from a comparison of the number of tributaries shown and the extent to which the bends in the rivers are defined on the two maps. Similar comparisons with other data sources indicate that the 1:250,000-scale BAKOSURTANAL series is the best source of base maps for West Kutai and other parts of East Kalimantan.

Most of the spatial plans published to-date have been based on TGHK forest status maps. Led by the Ministry of Forestry, these maps were originally published in 1985 through a collaborative effort that involved provincial offices of Agriculture, Lands, Public Works, Transmigration and other sectoral agencies. TGHK maps define the boundary between land over which the Ministry of Forestry has jurisdiction (forest

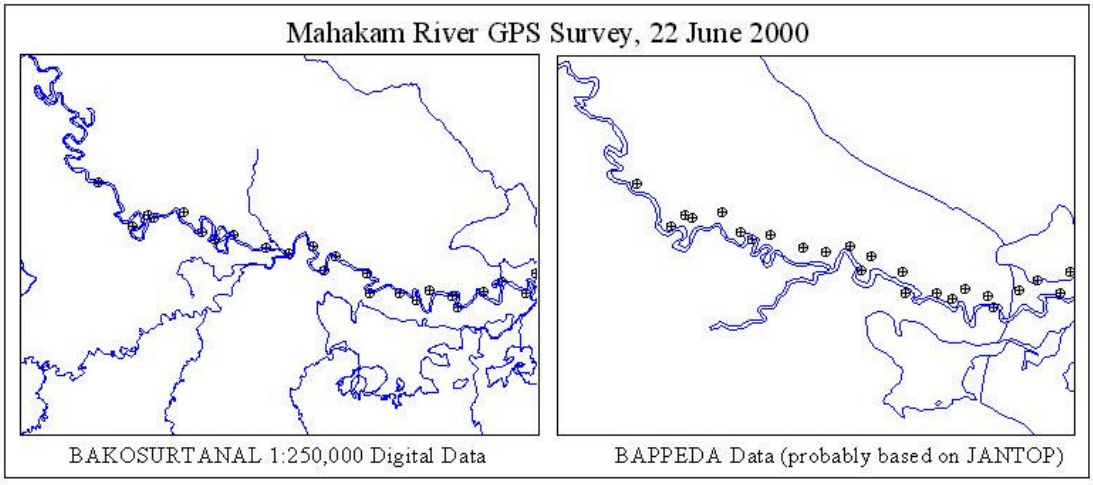

Figure 3.3 - Base Map Comparison

land) and all other land in the country (non-forest land). Forest land is further sub-divided into the following functional classes – Protection Forest, Conservation Forest, Limited Production Forest, Production Forest and Conversion Forest. It is widely acknowledged, even with the Ministry of Forestry, that the TGHK maps were seriously flawed when they were published, and they are in any case now 15 years out-of-date.

It is not constructive simply to criticize the maps that have been produced and are currently being used for spatial planning. Surveying and mapping in Indonesia have been subject to very real technical, financial and institutional constraints, and the result is that

existing map resources do not meet the spatial planning requirements for large parts of the country. This situation poses two fundamental questions. First, can we define appropriate uses of the maps we already have so that they can meet at least some of our immediate spatial planning needs? Second, what can be done to improve the quality of spatial data over the medium to long term. As discussed in Chapter 4, answers to these questions must be sought as part of a long term strategy to develop spatial planning capacity at all levels. Section 4.2.3 provides some guidance as to how the questions might be answered, but the answers themselves will only come out of a concerted collaborative effort from the parties responsible for spatial planning in individual administrative units. This is one of the areas the Spatial Planning and GIS Specialist proposes to focus on during a follow-up consultancy.

3.4 Institutional Capacity

The spatial plans published by BAPPEDA are generally considered to carry very little authority as bases for decision-making concerning land use. Sectoral interests from line agencies, private businesses and other sources often run counter to general local development objectives and specific land use guidelines published in spatial plans. They are frequently so strong that spatial plans are either amended or simply ignored (Jarvie, 1999). Though BAPPEDA and other local government agencies will probably become stronger with the devolution of power and authority to the regions, decades of centralized planning have left behind a legacy of depleted natural resources, degraded landscapes, land management conflicts and underdeveloped local capacity for preparing plans and overseeing their implementation. One of the first steps towards addressing these very significant constraints to sustainable natural resources management is to seek ways of breaking down the institutional barriers that still manifest themselves in "us and them" attitudes.

BAPPEDA as an institution does not have the technical capacity to prepare spatial plans on its own. West Kutai's BAPPEDA in Melak has only recently been established and it currently has a staff of five. Even if it were adequately staffed, the office does not yet have the equipment and supplies it needs for conducting surveys, gathering secondary data, preparing maps and managing large and complex spatial databases. These technical resources are clearly inadequate to prepare spatial plans for an area the size of Belgium! This situation is repeated in BAPPEDA offices throughout East Kalimantan and other parts of Indonesia, but technical capacity in West Kutai is particularly weak because it is such a young institution. Furthermore, many of the institutions that play supporting roles in spatial planning in other administrative areas are not yet functioning in West Kutai. For example, BPN and BIPHUT do not yet have a local presence, and the DPRD for West Kutai will not be formed until later this year. This makes it even more difficult for BAPPEDA to access the technical resources it needs to meet its planning responsibilities and to institute open and participatory spatial planning processes.

At present BAPPEDA relies almost exclusively on secondary sources for the data it uses for spatial planning. The agency's role is to integrate data and coordinate planning based on inputs it receives from other stakeholders in a province or a district. This means that, though BAPPEDA has little control over the quality of input data, it is usually held fully responsible for the quality of the spatial plan it produces from those data. BAPPEDA cannot and will never be able to do spatial planning on its own – it simply does not have the resources needed to do the job independently. The agency must have active support from other parties, and these other parties must share responsibility for preparing and implementing spatial plans.

The time and money allocated to spatial planning are almost always inadequate for the task at hand. Similarly, provincial and district BAPPEDA and the small consulting groups they hire do not provide the technical or human resources needed to produce good spatial plans. Real resource constraints such as these are difficult to overcome, especially during this period of political and economic transition. Short-term solutions are elusive, but a number of things could be done over the next 5-10 years to relieve BAPPEDA of some of its burden and to share some of the responsibility for spatial planning with other stakeholders in the community. Over time BAPPEDA and its partner institutions will improve local technical capacity for spatial planning. What is needed now is for BAPPEDA in Melak and in other districts and provinces to design Capacity-Development Programs (CDPs) by defining the scope and objectives of spatial planning at each level, determining what technical and human resources will be needed to meet those goals, assigning institutional roles and responsibilities, developing effective participatory planning mechanisms and identifying sources of funds which will be adequate to pay for both short term planning and long term capacity building. Specific issues for consideration in designing and implementing a CDP are the subjects of the next chapter.

4. Design Issues for a Spatial Planning Capacity Development Program

East Kalimantan's districts have long and short term needs as far as spatial planning is concerned. Short term needs tend to be project and product oriented whereas long term needs are more process oriented. In the short term, BAPPEDA and its partners are interested in defining what needs to be done to get a particular spatial plan published before the end of the fiscal year. Over a longer period planning authorities are interested in defining what could be done to make the spatial planning process more effective, more efficient and more open. Historically BAPPEDA and other government agencies involved in spatial planning have focused more on meeting their short term needs and less on developing and pursuing long term capacity building strategies (NRM/EPIQ 1999). This focus must be reversed if spatial planning is to become more useful as a tool for guiding regional development.

Presenting specific details of a long term strategy for building local spatial planning capacity is beyond the scope of this report. What is presented in this chapter is an outline of the major issues that districts should consider in preparing spatial planning Capacity Development Programs or CDPs. Helping stakeholders in East Kalimantan determine how to address these issues and start to meet some of the needs for long term capacity building in spatial planning would be an extremely useful role for NRM/EPIQ to play during the next year. The model could also be extended to other NRM/EPIQ-supported districts in West Kalimantan, North Sulawesi, Central Sulawesi and West Papua.

The major issues that need to be addressed in a strategic plan for developing spatial planning capacity are listed in Figure 4.1 It is important to recognize that these issues should be addressed with the long term in mind, not in the context of meeting the requirements for producing a single spatial plan in a fixed and relatively short period of time. An example of a work plan to meet this very different set of short term requirements is proposed in Chapter 5.

4.1 The Long Term Scope and Objectives of District Level Spatial Planning

The first step in developing any long term capacity-building program is to define the reasons for wanting or needing that capacity. This involves answering questions such as "why do we want to do spatial planning?", "what do we want our spatial planning process to do for us?",

Figure 4.1 - Considerations for Designing a Spatial Planning Capacity Development Program (CDP)

- ?? Long Term Scope and Objectives
- ?? Resource Requirements
  - Human Resources/Technical Skills
  - Equipment and Facilities
  - Data and Information
- ?? Institutional Roles and Responsibilities
- ?? Participatory Planning Mechanisms
- ?? Funding

"what information will our spatial plans have to contain to meet our requirements?", and "how should that information be presented to maximize its utility to all stakeholders?" Without a clear understanding of where we want to go it is impossible to define what resources and mechanisms we will need to get there.

Developing technical and institutional capacity in a discipline as complex as spatial planning is a continuous and never-ending undertaking. There is no final state that would allow a district to say "there, we've reached it; we now have spatial planning capacity so we don't need to develop it any more!". With this in mind, the program should present a series of intermediate objectives over a long period of time It should be seen more as a means of giving *direction* to capacity-building efforts than as a fixed statement of the desired state of spatial planning capacity. In this regard the program document should also be flexible so that it can be adapted to respond to changes in economic and social well-being, biophysical conditions (caused by, for example, natural disasters), technology or the needs and aspirations of the district community.

Chapter 1 described the general policy objectives stated in the spatial planning legislation. These are summarized again here as the framework within which individual districts should be seeking to define more specific and more detailed goals. In general spatial planning is intended to provide a set of mechanisms for:

- ?? Devolving much of the authority for classifying and gazetting land to local authorities;
- ?? Calling for community consultation and involvement in the spatial planning process;
- ?? Recognizing the right to compensation for losses caused by competing or conflicting development activities;
- ?? Calling for inter-sectoral coordination in the determination of land use;
- ?? Delegating responsibilities for forestry activities related to soil conservation and social forestry to district authorities.

Districts need to elaborate on these general objectives in the context of their own unique sets of opportunities, issues and constraints. While this means that different districts will have different goals and aspirations, the following are examples of the types of questions all districts should expect their spatial plans to be able to answer:

- ?? What is the current distribution of natural resources in the district (vegetative cover, soils, mineral deposits, water resources, animal populations)?
- ?? How are those resources being used in specific locations, and by whom (land use, land status, land tenure)?
- ?? How is the population distributed throughout the district? How do social and economic characteristics vary from place to place?
- ?? Where are the roads

?? Which locations provide the best opportunities for investment from the private sector (resource extraction, processing, manufacturing, commercial ventures) and from the public sector (roads, railroads, bridges, irrigation schemes, utilities, other infrastructure)?
?? Where are the competing or conflicting activities taking place? What is the exact nature of those conflicts? Which parties are involved – not just sector, institution or company names, but names and addresses of specific offices and individuals?
?? Where are the traditional land (*tanah adat*) claims? What is the exact nature of those claims? Which parties are involved?
?? Where is there a need for inter-sectoral coordination in the determination of land use? Which sectors are involved and which offices and individuals have the authority to represent those sectors in the spatial planning process?

Having defined what it is that a district wants to know from its spatial plan, attention can then turn to defining the resources required to provide that information.

4.2 Resource Requirements

To be effective, spatial planning must be seen as a continuous process, not simply a matter of publishing a planning document every few years. The processes involved in compiling, maintaining, distributing and implementing spatial plans are very demanding of resources. A crucial role for each district's CDP should be to define resource needs and identify mechanisms for meeting those needs over an extended period of time. This section is intended as a guide to help districts do this. The types of resources needed for spatial planning include skilled personnel, technical equipment, spatial data and funding. Sub-sections 4.2.1 to 4.2.4 describe specific types of resources required in each of these three categories. Following these, Section 4.3 discusses the need to define *who* will be responsible for providing the resources, and Section 4.2.4 describes the need to determine how they will be *paid* for, and by whom.

Figure 4.2 - Skills Required for Spatial Planning

?? Surveying
?? Drafting
?? Evaluating(Spatial) Data
?? Analysing (Spatial) Data
?? Managing (Spatial) Data
?? Mapping
?? Land Use Planning
?? Regional Planning
?? Resolving Conflicts
?? Interpreting Satellite Images
?? Interpreting Aerial Photographs
?? Operating Computers
?? Operating GPS Receivers
?? Facilitating Participatory Planning Processes

4.2.1 Human Resources/Technical Skills

Effective spatial planning requires input from large numbers of people with a wide range of skills. The types of skills needed are listed in Figure 4.2 At present neither the number of people nor the level of skills are generally available for spatial planning either in the provinces or the districts. It is therefore crucial that each BAPPEDA's CDP should define how many people and with what types and levels of skills it needs

to meet the requirements for spatial planning in its particular district. That is not to say that BAPPEDA needs to employ all these people on a permanent and full-time basis; other government agencies, consulting firms and NGOs should provide some of the manpower needed (see Section 4.3). But as the agency primarily responsible for spatial planning, BAPPEDA should take the lead in defining the district's human resource requirements and setting targets for meeting those requirements.

4.2.2 Equipment and Facilities

Figure 4.3 lists some of the equipment and facilities districts need to be able to conduct spatial planning effectively, efficiently and openly. The items listed include both standard office equipment and facilities and specialized technical items. Again it is not crucial that district BAPPEDA offices should own all the items listed, but it is important for them to have ready access to them. Districts should consider the possibility of establishing a Spatial Planning Unit or SPU**.** This would be a physical space with facilities for mapping, image interpretation, computer processing, storing maps and holding large meetings. The SPU may well be physically located in BAPPEDA, but it should be open to all stakeholders as a place where they can come to participate in the spatial planning process.

Figure 4.3 - Equipment and Facilities Needed for Spatial Planning

Required	**Optional**
Office Space	Computer
Map Case	Digitizer Tablet
Light Table	Large Format Printer
Drafting Instruments	Clinometer
Drafting Supplies	Theodolite
Map Table	
GPS Receiver	

The concept of SPUs is not new. The Land and Marine Resource Evaluation Projects (LREP and MREP) promoted the idea of Provincial Data Centers in the 1990s, but in general these centers have not flourished. There are a number of reasons for this. First, Provincial Data Centers were conceptualized as BAPPEDA-only facilities. Very few BAPPEDA offices, even at province level, have the human, technical and financial resources needed to maintain and operate such facilities by themselves. Other stakeholders in the district or province should be expected to support their local spatial planning facilities by contributing resources of one kind or another. Second, the design of the Provincial Data Centers was too high-tech to be sustainable. Basically they were conceived as GIS laboratories equipped with sophisticated computers and software and responsible for building and managing huge, complex digital databases. Many of the Centers established by LREP and MREP now lie idle because computers are broken, databases are not maintained, and skilled staff have moved away. The third reason Provincial Data Centers have not been effective is that local authorities see them as being imposed from above – they were designed to meet the needs of central government, not the needs of local stakeholders. Finally, Provincial Data Centers, as the name suggests, are *data* – orientated. Staff have been busy compiling

huge digital spatial databases without giving enough thought to why they were compiling those databases. Work in the centers has been driven by the supply of data rather than by the demand for information.

As they begin to think about the purpose, roles and functions of their SPU, districts should guided by the following principles:

- ?? Funding from other agencies, not just BAPPEDA
- ?? Staff from other agencies and other stakeholders, not just BAPPEDA
- ?? Limited reliance on high technology
- ?? Primary purpose – to provide the information needed for spatial planning

A detailed design and a set of operating procedures for its SPU would be important parts of a district's CDP. Plans for building and improving spatial data holdings should also be clearly laid out as part of the program. CDPs should also address the issues related to spatial data and information outlined in the next section.

4.2.3 Spatial Data and Information

One of the major constraints to effective spatial planning in Indonesia is the lack of availability of good quality spatial data. Particularly for remote regions such as Kalimantan, we simply do not have a good understanding of conditions on the ground. For the purpose of developing a long term program for improving this situation, districts should be concerned with addressing weaknesses in five areas:

- ?? Spatial Data Requirements
- ?? Accessing Data from Existing Sources
- ?? Collecting Primary Data
- ?? Evaluating and Controlling Data Quality
- ?? Managing Spatial Databases

Spatial Data Requirements – The CDP should contain a list of the spatial data required by the district SPU. The contents of this list will be determined by the scope and objectives the district has already defined as the first part of its capacity-building strategy. Though details will vary from place to place, examples of the types of data required by districts in East Kalimantan are listed in Table 4.1.

Reference Data	Thematic Data
?? Coastline ?? Rivers ?? Lakes, Reservoirs, Other Water Features ?? Watershed Boundaries ?? Contours ?? Spot Elevations ?? Administrative Boundaries ?? Roads ?? Infrastructure (Bridges, Dams, Airports, Shipping Terminals, Irrigation Infrastructure, etc.) ?? Settlements	?? Present Land Cover (Vegetation) ?? Soil Units ?? Geology Units ?? Mineral Deposits ?? Landform Units ?? HPH Boundaries ?? HTI Boundaries ?? Mining Concession Boundaries ?? Plantation Boundaries for Non-Wood Products (palm oil, rubber, coconuts, bananas, etc.) ?? Transmigration Boundaries

Table 4.1- Spatial Data Requirements for Spatial Planning

In addition to listing the types of data they need, districts should also define the technical specifications data should meet to fulfill spatial planning requirements. Figure 4.4 lists examples of the technical qualities that should be considered in defining specifications for spatial data. Once the data requirements are defined, the next step in the process of developing a capacity-building program is to determine where those data may be obtained from. There are basically two options – obtain existing secondary or collect primary data.

Figure 4.4 – Characteristics of Spatial Data for Defining Technical Specifications

?? Scale
?? Extent of Coverage
?? Level of Detail
?? Accuracy
?? Date

Existing Data Sources –

Secondary sources should only be used if the data they provide meet the technical requirements discussed above. In practice, of course, secondary data are often the only realistic option – the time, money and technical resources are usually not available to meet primary data requirements in the short term. The fact that most of the spatial data currently available in Indonesia not of good enough quality to meet district-level spatial planning requirements is the main reason why districts need a strategy for improving the quality of their data over time.

Collecting Primary Data –

Spatial planners will want to collect primary data for two reasons – to obtain data that are not available from a secondary source, or to improve the quality of secondary data by verifying and updating it in the field. The requirements for primary data in a district like West Kutai are huge, given the general unavailability of good quality secondary data.

The CDP should lay out a program for developing the surveying and ground-truthing skills of local personnel. It should also define a schedule for collecting data, giving urgent needs top priority and postponing less important data collection efforts until a later date.

Evaluating Data Quality –

In the short term districts will continue to obtain most of their spatial planning data from secondary sources. Often the search stops when one source has been found, but frequently maps showing a particular theme can be obtained from two or more different sources. For example, BAKOSURTANAL, INTAG and JANTOP have all published 1:250,000-scale base maps for parts of East Kalimantan. Similarly, maps showing logging concession boundaries can be obtained from a number of different sources including regional Ministry of Forestry offices (Kanwil Kehutanan), local communities, and the logging companies themselves. This being the case it is important to be able to evaluate the quality of secondary data and determine which, if any, meets the spatial planning requirements of the district. Often maps obtained from the "official source" are accepted without question, but less important than "who has the authority to publish maps?" is the answer to the question "who publishes maps that most accurately reflect conditions on the ground?"

Managing Spatial Databases –

Spatial databases quickly grow into large collections of maps, images, field survey documents and, in computerized offices, digital directories and files. These valuable resources must be well organized and well managed if they are to be accessible and useful. Figure 4.5 lists the aspects of spatial database management that warrant careful attention.

As with the other elements of spatial planning capacity discussed in this chapter, a well-managed spatial database is not something that can be established overnight. Recently formed districts such as West Kutai currently have very few spatial data resources to manage – it will take time for district staff to build their database and develop the skills needed to manage it well. Some long-established institutions already have large collections of spatial data, but where these are currently in disarray it will take a concerted effort over an extended period of time to organize and catalog the maps, design a digital database and edit, document and back-up digital data holdings.

Figure 4.5 - Considerations for Managing Spatial Databases

- ?? Cataloguing and Storing Maps
- ?? Documenting Maps
- ?? Designing Digital Databases
- ?? Securing Digital Databases
- ?? Documenting Digital Databases
- ?? Data Distribution Policy

Even if this were a one-off task it would be a major undertaking, but spatial databases are constantly in a state of flux, and if they are not

well managed they can rapidly deteriorate as maps are lost or damaged, new data are received faster than they can be incorporated into the system, and computers are hit by viruses, power surges or careless users. Spatial databases will not manage themselves, and it is important that districts recognize this by incorporating a database management capacity building program into their CDP's.

Providing access to the information held in a spatial database is an important aspect of database management. Free and uncontrolled access can quickly lead to chaos, but if a clear, well-documented and well implemented distribution policy is in place, anyone who wants a copy of a map, a GIS file or any other spatial planning document should be able to get one. This applies to staff from other government departments, representatives of NGOs, consultants, and members of the general public. That is not to say data should be *freely* available but they should be *easily* available to anyone who is willing to pay the cost of reproduction. In their CDP, districts should outline procedures for making information more accessible. Each spatial planning partner agency should plan to publish a catalog of its data holdings. The catalog would list and describe the spatial data held by that agency, and it would explain how to obtain copies of maps and other kinds of data with details of prices, availability and contact names and addresses.

4.2.4 Funding

Traditionally the burden of paying for spatial planning has fallen squarely on BAPPEDA's shoulders. However, under the proposed partnership arrangement, other stakeholders will be expected to bear some of the costs, just as they will enjoy the benefits associated with better planning and natural resources management. Cost-sharing arrangements will bring the duel benefits of reducing BAPPEDA's financial burden and increasing the total amount of funds allocated to spatial planning. While it is beyond the scope of this report to propose specific cost sharing mechanisms, the concept is presented in general terms as a necessary part of the strategy for building spatial planning capacity and improving the quality of spatial plans. A recommendation to hire a Local Government Financing and Budgeting Specialist to elaborate on these ideas is made in Chapter 6.

West Kutai district has a budget allocation of Rp.400 million (US$ 50,000) to prepare a spatial plan this year. Based on an area of 31,629 square kilometers (BAPPEDA, East Kalimantan, 2000), this represents approximately Rp.12,650 or US$1.58 per square kilometer. For a new district embarking on its first spatial planning exercise, this amount of money will clearly not be sufficient to pay for the resources needed to implement a comprehensive, participatory and technically sound spatial planning program. Particularly in light of the financial constraints imposed on all sectors of Indonesian society by the current economic situation, it seems reasonable to propose that the costs of preparing a spatial plan should not be bourn solely by BAPPEDA, the coordinating agency.

Contributions from other stakeholders could boost funding in a number of areas, including the following:

- ?? Equipping, staffing and operating the SPU on a full-time basis
- ?? Conducting field surveys
- ?? Acquiring data from secondary sources
- ?? Holding public meetings and workshops
- ?? Reproducing and distributing maps, reports and other spatial planning documents

What is needed is a realistic understanding of what good spatial planning really costs, and then the institution of mechanisms for sharing those costs equably among stakeholders. Such mechanisms might include a local spatial planning tax, in-kind contributions of, for example, maps, satellite images, technical equipment and office space, and voluntary work programs for conducting field surveys and boundary marking.

With a clear understanding of the long-term scope and objectives of spatial planning and the resources required to meet those goals, the next step is to determine which institutions can contribute to the planning process, and what their respective roles will be in that process.

4.3 Institutional Roles and Responsibilities

Acceptance of the fact that BAPPEDA cannot possibly do spatial planning alone is fundamental to designing a CDP that realistically addresses the needs for capacity building. District authorities must determine which institutions can and should contribute to spatial planning, and then define who is responsible for doing what. Only by cultivating good working relationships with key partners will BAPPEDA be able to gain access to all the human, technical and information resources described in the previous section. The basic considerations for defining institutional roles and responsibilities are listed in Figure 4.6.

The first step in partnership building is to identify the partners. In the context of district level spatial planning, the list is likely to include the following: BAPPEDA, the Bupati's office, DPRD, BPN, BIPHUT, sub-district, village and traditional community leaders, various DINAS and Balai, local technical consulting groups, investors and trade associations, NGOs, academic institutions and externally funded projects and programs. It is important to be as specific as possible in this task, not to be content with a general list of institutions such as the one given above. Wherever possible specific offices, departments and even names of

Figure 4.6 - Considerations for Defining Institutional Roles and Responsibilities

- ?? Identify the Partners
- ?? Define Specific Tasks and Responsibilities for Each Partner
- ?? Define Mechanisms for Collaboration and Participation
- ?? Define the Organizational Structure of the Spatial Planning Unit

individuals should be listed, a task that will probably become easier once some thought has been given to defining partners' roles and responsibilities.

Requirements for human resources and technical skills, equipment, supplies and facilities, and for spatial information will have been defined in earlier stages of designing the CDP. The second step is to determine *who* will be responsible for providing those resources. A clear description of the part each institution and organization will play in the spatial planning process is a key element in developing a district's CDP. It should be remembered that this is still part of the design phase for the CDP, and that what we are attempting to do at this stage is define an ideal or optimum state, not describe the current situation. The idea is not to assign roles and responsibilities based on current capacity, but to set targets for capacity building so that the various partners will be better able to meet their respective responsibilities in the future.

Based on the specifications for resource requirements, the types of questions we should be looking to answer include the following:

- ?? Which institutions or organizations will be able to provide skilled surveyors?
- ?? Where will the draftsmen work?
- ?? Who will operate the computers to conduct analyses and prepare reports, maps and other planning materials?
- ?? Which institutions and individuals will have the authority to classify and gazette land?
- ?? Who will facilitate participatory planning meetings?
- ?? What role will members of the public play in those meetings?
- ?? Who will be responsible for providing office space for the SPU?
- ?? Who will supply drafting equipment and materials?
- ?? Where will the spatial data come from?
- ?? Where will it be stored?
- ?? Who will conduct field surveys and analyze the data from those surveys?
- ?? Who will be responsible for managing spatial data holdings?

Answers to questions like these will help partners understand what exactly they are expected to do to contribute to spatial planning, but they will not be enough to make those things happen. A third step in defining roles and responsibilities is to identify the mechanisms that will be needed to facilitate collaboration and participation in the process. Mechanisms such as contracts, letters of commitment and memoranda of understanding will be needed to formalize working relationships. Verbal agreements and other informal arrangements are not acceptable because they do not explicitly define roles and responsibilities and they lack accountability. To make it clear *how* collaborative and participatory planning will work, district authorities will need mechanisms to:

- ?? Conduct systematic database development

?? Facilitate data sharing
?? Evaluate and control data quality
?? Advertise public planning meetings and workshops
?? Incorporate input from those meetings into plan updates and revisions
?? Resolve conflicts over access to or use of natural resources
?? Hold partners accountable for their agreed role in spatial planning
?? Establish and operate cost-sharing arrangements (see Section 4.2.4)

This list is not intended to be exhaustive, but it does point to some of the weaknesses in current approaches to spatial planning that could be addressed with the establishment of appropriate enabling mechanisms.

The final step in defining institutional roles and responsibilities is to design an organizational structure for the SPU. As the hub of a district's spatial planning network, establishing a well organized and well managed SPU is essential to the successful development of spatial planning capacity. Eight years of experience have demonstrated that small groups of BAPPEDA staff devoting only part of their time to spatial planning are not enough to do the work that needs to be done. To be effective, SPUs must have a large staff drawn not only from BAPPEDA but from other partners including NGOs, local consulting firms, academic institutions and government agencies. While it will not be necessary for SPUs to be fully staffed at all times, a full-time core should be established to manage and run the unit on a daily basis.

SPUs should be structured to operate as independent departments or divisions, probably though not necessarily within BAPPEDA. In this regard they will need to be staffed by managers, administrators and support staff as well as by technicians (Figure 4.7). This is important because many of the mapping and GIS units established in Indonesia in recent years no longer operate because they lacked crucial management and administrative support (see discussion on Provincial Data Centers in Section 4.2.2). The following is a summary of the responsibilities of staff in each of the four main categories.

Managers – Managers will bear overall responsibility for the operation of SPUs. Their responsibilities will include staffing and equipping the units, directing and supervising technical and administrative staff, determining work priorities, coordinating with partner institutions and organizations, monitoring the quality of data, analyses, maps, reports and other planning documents, facilitating public meetings and technical workshops, and preparing and monitoring budgets.

Figure 4.7 - Basic Staffing Requirements of a Spatial Planning Unit

?? Managers
?? Technicians
?? Administrators
?? Support Staff

Technicians – Technicians will perform a wide range of functions including conducting field surveys, drafting maps and other graphics, writing reports, managing printed and digital databases, interpreting satellite images and aerial photographs, processing and

analyzing data, operating computers, and preparing materials for distribution and presentation at public planning meetings.

Administrators – Administrative staff will be responsible for clerical duties including maintaining stocks of office supplies and materials, typing letters, reports and other documents, filing, photocopying, answering the telephone, receiving and distributing mail, and taking minutes of meetings and workshops.

Support Staff – Essential support staff will include drivers, cleaners and guards. Support staff and administrative staff may be required to assist at public meetings and on field trips from time to time.

Because every district will have its own unique set of staffing requirements, it is not possible to define exactly how many members of staff will be required in each of the four categories described above. That will be for individual local authorities to determine as they design their CDPs. The main point made here is that, if SPUs are to operate effectively and efficiently, and if they are to be sustainable, they must be structured along similar lines to this model – it is not enough to assign the label of "Spatial Planning Unit" to a small group of technicians who have responsibilities outside the realm of spatial planning and who lack the management and administrative support that would allow them to focus exclusively on their technical work.

In addition to defining the long term scope and objectives of spatial planning, the resources required to meet those goals, and the roles and responsibilities of the partners in the spatial planning network, one more fundamental issue must be addressed to complete a districts CDP. That issue is funding, and the basic question in this context is "who will pay for producing spatial plans and building spatial planning capacity?" Funding requirements and the need to develop cost-sharing mechanisms are the subject of the next section.

5. A Short-Term Work Plan for Producing West Kutai's First Spatial Plan

Given the limited resources and time available for producing West Kutai's first spatial plan, expectations concerning the content and quality of the plan should not be set too high. The exercise will provide valuable opportunities for developing and testing planning techniques and for instituting mechanisms to promote multi-stakeholder participation in the planning process. Lessons learned from this experience should be used to guide and strengthen initiatives taken as part of the district's longer term Capacity Development Program.

The Spatial Planning and GIS Specialist submitted a draft outline of a work plan to BAPPEDA and the Bupati's office in Melak in July. A summary of activities and a timetable for carrying them out are presented in Figure 5.1. The remainder of this chapter presents a more detailed description of the major tasks listed in the figure.

Proposals for preparing West Kutai's spatial plan embody the following principles:

- ?? Regular public meetings should be held with the dates set in advance to give as many stakeholders as possible the opportunity to participate.
- ?? The consultants contracted to prepare the plan should be from a local firm (from East Kalimantan) and most of the work should be done in Melak.
- ?? All stakeholders in West Kutai should be given the opportunity to participate in the planning process.
- ?? The process of designing and preparing West Kutai's spatial plan will be transparent and flexible enough to respond to input from stakeholders.

With these principles in mind, the NRM/EPIQ consultant has proposed the following 17-step work plan.

1. **Form a spatial planning team** – The team will be responsible for implementing this work plan and ultimately for producing the spatial plan. As such it should be comprised of a mix of management and technical personnel. The following is the likely makeup of the team:

- ?? Bupati (or representative), West Kutai
- ?? Head of BAPPEDA, West Kutai
- ?? Head of BAPPEDA West Kutai's Physical Infrastructure Section
- ?? Technicians from a local firm of planning and mapping consultants
- ?? NRM/EPIQ's GIS and Spatial Planning Specialist

Once the team has been formed responsibilities for performing the tasks in this work plan should be assigned to specific individuals or groups, and the schedule of activities (Figure 5.1) revised accordingly.

	Task	July				August					September				October				November				December			
No.	Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1.	Form a Spatial Planning Team																										
2.	Define vision and goals																										
3.	Evaluate bids and mobilize consultants																										
4.	Define scope of the spatial plan																										
5.	Define contents & structure of spatial plan																										
6.	Define data needed and possible sources																										
7.	Public meeting in Melak, initial findings																										
8.	Review input/feedback; revise work plan																										
9.	Collect data																										
10.	Conduct analyses; prepare draft outputs																										
11.	Public meeting in Melak, draft spatial plan																										
12.	Review input/feedback, revise work plan																										
13.	Collect additional data																										
14.	Conduct additional analyses																										
15.	Prepare final outputs																										
16.	Public meeting in Melak, final draft																										
17.	Publish spatial plan																										

Figure 5.1 - Proposed Schedule of Activities for Preparing West Kutai's Spatial Plan 2000

2. Define the general vision and goals for the development of West Kutai– This information is needed to guide the design and development of the spatial plan.

3. Mobilize the technical consultants – it is important to do this as soon as possible so that the technical consultants can be involved at all stages of the planning process. Input from planning and mapping consultants during the design phase is crucial if the scope, structure and contents of the plan are to be defined realistically in terms of technical feasibility.

4. Define the scope of the spatial plan – A statement of the scope of the plan will provide answers to the following questions:

- ?? How will the spatial plan contribute to meeting the general goals and vision of the district?
- ?? What information does the team need from West Kutai's spatial plan?
- ?? For what purposes will the plan be used?
- ?? What sort of decisions will be made based on the contents of the spatial plan, and who will be responsible for making those decisions?
- ?? What authority will the spatial plan have in relation to plans from other government sectors or from the private sector?

5. Define the contents and structure of the spatial plan – These should be tailored to meet the needs defined in the scope. The output from this task will be a detailed outline of the spatial plan which should provide answers to the following questions:

- ?? What will be the chapter and section headings in the spatial plan?
- ?? How many maps will the plan include?
- ?? What information will each map show?
- ?? At what scale will the maps be printed?

6. Define the data needed to provide the information defined above – This activity should produce a detailed list of data requirements and specify potential sources for those data. The types of data needed are likely to include maps, satellite images, tables of statistics and other reports. If the same data can realistically and practically be acquired from more than one source, the options should be listed so that alternatives can be evaluated and compared. Processing and analysis requirements should also be defined at this stage so that data in the most appropriate format can be sought. Options will include, amongst others: digital maps, digital GIS layers, printed maps, digital satellite data, printed satellite images, spreadsheet or database files and statistical reports.

7. Prepare a budget – The last step in the design phase will be to prepare an itemized budget for producing the spatial plan. The main reasons for doing this are to gain a better understanding of how much it costs to prepare a spatial plan for a district and to identify categories that are either under-funded or over-funded so that requests for spatial planning funds in the future are more reasonable and realistic.

The budget should provide a detailed breakdown of cost estimates in the following expense categories:

- ?? consulting services (professional fees)
- ?? data acquisition (maps, satellite images, GIS data, reports)
- ?? transportation (long distance and local, air fares, vehicle rental, boats)
- ?? accommodation
- ?? meals
- ?? meetings (for spatial planning team members and stakeholders)
- ?? equipment (computers, printers, GPS receivers, drafting tables, map cases)
- ?? supplies (paper, ink, diskettes,
- ?? printing and publication (printing, photocopying, binding)
- ?? communications (phone, fax, mail, radio announcements, newspaper advertisements)

The budget should include a statement of funding sources that distinguishes between local and external sources and between government and non-government sources. This will help determine both the extent to which spatial planning is financially sustainable and the extent to which it relies on external funding support.

8. Hold the first public meeting in Melak – The purpose of this meeting will be to present the design of the spatial plan and solicit feedback in a public and open forum. The planning team should present all aspects of plan design – vision, goals, scope, content, structure, data requirements, budget – and it should be prepared to change the design wherever possible in response to constructive criticism and feedback from participants in the meeting. The date recommended for the first public meeting is 24th August.

Three public meetings are proposed during West Kutai's seminal spatial planning initiative. It is very important that the dates for these meetings are fixed from the outset and that the meetings are not delayed because progress has been slower than expected or because some people are unable to attend. There are two reasons for this. First, the meetings must be widely publicized well in advance to give all stakeholders the opportunity to attend. Some participants will be traveling long distances and it is unreasonable to disappoint them with last-minute changes of schedule. Second, planning is a process, not a product, and participatory planning means that stakeholders participate in that process. They should be consulted at frequent and regular intervals so that they not only have opportunities to comment on *what* is being produced but also on *how* the plan is being produced,. The dates proposed for the three meetings in Melak are intended to coincide with the completion of the design, first draft and final draft, respectively. But if the design is not completed by August 24th, the meeting should still go ahead – stakeholders have a right to know that the spatial planning process is behind schedule and to ask, "why?". Similarly, the second and third meetings should go ahead as proposed on October 20th and December 15th, regardless of whether or not the plan has reached its first or final draft stage. If the process is behind schedule, perhaps participants in the meetings can suggest remedies or offer direct assistance to help catch up.

9. Incorporate feedback from the first public meeting into the planning process – Wherever practical and appropriate suggestions for changes in the design of the spatial plan should be acted upon. Clearly the spatial planning team will not be able to change the design to accommodate every suggestion put forward by individuals and small groups, but where significant changes are backed by strong consensus from stakeholders, every effort should be made to respond accordingly. Changes in spatial plan objectives, scope, contents, structure or data requirements might affect the work plan schedule. If this is the case, the work plan should be amended accordingly.

10. Collect and evaluate data – Based on the requirements specified in 6 above, amended as necessary following the public meeting, an intensive data-collection effort should begin. Data should be evaluated for quality, format and completeness. Where the same type or class of data are obtained from different sources, comparisons should be made to identify the most reliable and most accurate source. Field checks should be carried as much as possible to verify the accuracy of spatial data. Alternative primary or secondary sources should be sought to fill gaps caused by missing or unsuitable data.

To speed up data collection, as soon as data requirements have been defined BAPPEDA should write to all stakeholders requesting they submit maps and other data for consideration in the spatial planning process. This will give all sectors the opportunity to contribute to the plan and relieve BAPPEDA staff and the consultants of some of the responsibility for data collection.

11. Prepare the first draft of the spatial plan – This stage involves processing and analyzing data, interpreting the results of the analyses and preparing materials to present those results at a second public meeting.

12. Hold a second public meeting in Melak – The purpose of this meeting will be to present the first draft of the spatial plan and solicit feedback from stakeholders. Again the meeting should go ahead on the proposed date regardless of the status of the spatial plan. It is proposed that this meeting take place during the third week of October, roughly half-way through this initial planning period. In addition to presenting options and recommendations for land use, the spatial planning team should summarize the methods it used to prepare the plan and describe any constraints it had to overcome. Deviations from the design of the spatial plan or from the schedule of activities in the work plan should also be described and explained.

13. Incorporate feedback from the second public meeting into the planning process – Changes or additions to the spatial plan for which this is strong support from a majority of stakeholders should be acted upon. Similarly, the schedule for the remaining tasks in the work plan should be revised where practical and reasonable.

14. Collect additional data – It is highly likely that stakeholders at the second public meeting will criticize the data used as the basis of the draft spatial plan. In a meeting in June to discuss the final draft of the provincial spatial plan for Kalimantan Timur, much

of the feedback concerned data quality – it was inaccurate, obtained from the wrong source, incomplete, out-of-date or just simply wrong! Even if stakeholders are invited to submit data as proposed in 9 above, new and better sources are quite likely to be revealed at the mid-term public meeting. In anticipation of this, time for collecting additional data has been built into the time schedule and work plan.

15. Prepare the final draft of the spatial plan – The first draft of the spatial plan should be revised and updated to incorporate feedback from the second public meeting. This will require conducting new analyses of the improved and expanded data set and preparing new materials to present the revised results.

16. Hold a third public meeting in Melak – The third and final public meeting will seek endorsement from all stakeholders for the contents and recommendations in the spatial plan. It should be held in mid-December leaving two weeks to incorporate feedback from the participants.

17. Publish and distribute the spatial plan – Once final revisions have been made to the spatial plan it should be published and distributed throughout the district.

The activities proposed in this chapter are intended to help meet the immediate requirements for preparing the first version of West Kutai's spatial plan before the end of this year. Publishing a plan in December will certainly be a great achievement for the new district, and the document itself will be a valuable resource for the people of West Kutai. But much more valuable than the product will be the experience gained from having gone through the process of preparing it. As a pilot exercise the first West Kutai planning cycle will reveal procedural and technical strengths and weaknesses; it will help us identify which techniques and mechanisms work and which do not; and it will point to opportunities for and constraints to improving the planning process in the future. Lessons learned this year will be extremely useful in helping districts develop and implement their long-term CDPs.

6. Opportunities for NRM/EPIQ to Support the Development of Spatial Planning Capacity in West Kutai and Kutai

The NRM/EPIQ program states the following as its main objectives[4]:

1. To clarify roles and responsibilities for natural resources decision-making and management among all stakeholders;
2. To improve the capabilities of civil society to participate in their natural resources management responsibilities; and,
3. To support and promote decision-making processes regarding natural resources that are more transparent, accountable, inclusive and empirically based.

Continuing to help develop spatial planning capacity at district level in East Kalimantan would support all three of these goals. From his initial consultancy as documented in this report, the Spatial Planning and GIS Specialist identified unclear roles and responsibilities and insufficient and ineffective mechanisms for multi-stakeholder participation as two of the biggest constraints to spatial planning in the region. Continuing to help address these issues in the context of spatial planning would complement NRM/EPIQ's other initiatives in East Kalimantan and be entirely consistent with the programs approach to fostering better natural resources management practices.

Indonesia's districts have the most pressing needs for introducing transparent, accountable, inclusive and empirically based planning practices. At the same time they provide the best opportunities for developing new approaches to planning. Districts such as West Kutai and Kutai have little or no experience in spatial planning. They are starting from scratch which gives them the opportunity to institute sound planning practices from the beginning without having to worry about overcoming the constraints imposed by long established methods and mechanisms.

The major constraints to the practical application of spatial planning processes in West Kutai and Kutai districts are as follows:

- ?? Inadequately defined scope and objectives for spatial planning.
- ?? Insufficient resources to carry out the requirements of the Spatial Planning Act (UU 24/1992) and supporting regulations in the field.
- ?? Absence of strategic plans for acquiring the resources needed and developing spatial planning capacity over the medium and long terms.
- ?? Incomplete and poor quality spatial data sets.
- ?? An over-reliance on one institution – BAPPEDA – to conduct spatial planning.
- ?? Insufficient and ineffective mechanisms for multi-stakeholder participation in the spatial planning process.

[4] Source: NRM News, Vol. 1, No. 1, February 2000

The areas of expertise required are: spatial planning and GIS, participatory planning and community development and local government financing and budgetting. Short-term inputs from 4 specialists are proposed to help address issues in these technical fields. The specialists would all be based in Samarinda but they would spend much of their time in Melak and, to a lesser extent, in Tenggarong. Recommended tasks and levels of effort for each of the specialists are described below.

Spatial Planning and GIS Specialist.

Level of Effort – 100 working days during the period 1st September 2000 to 31st August 2001.

Tasks:

?? Continue to collect and organize existing resource and resource use maps dealing with but not limited to forestry, spatial planning and *adat* resource claims in East Kalimantan with a specific focus on two districts, West Kutai and Kutai.

?? Assist West Kutai district produce its first spatial plan. The consultant will assist specifically with preparing and implementing a work plan, defining the scope, contents and structure of the spatial plan and liaising between government officials and the technical consultants hired to prepare the plan.

?? Evaluate the process that results in the publication of West Kutai's General Spatial Plan 2000 and make recommendations for initiatives to build on the experience and make future spatial planning processes more effective.

?? Prepare a detailed work plan for producing Kutai's General Spatial Plan 2001 defining tasks, staffing requirements, roles and responsibilities and a timetable.

?? Assist the stakeholders of West Kutai define their long-term needs for building spatial planning capacity in the district. The outputs from this activity will be a strategic plan for developing the human, technical and financial resource West Kutai will need to gradually improve the quality and usefulness of spatial planning in the medium to long term (10 years).

?? Facilitate and actively participate in seminars and workshops to discuss opportunities and constraints to district-level spatial planning and the role of spatial planning in decentralized natural resources management.

Local Mapping/GIS Technician

Level of Effort – 80 working days during the period 1st October 2000 to 31st August 2001.

Tasks:

- ?? Assist in cataloguing and managing NRM/EPIQ East Kalimantan's spatial databases, including printed maps, satellite images and digital GIS data.
- ?? Assist in building, cataloguing and managing spatial databases at BAPPEDA in Melak and Tenggarong.
- ?? Conduct spatial analyses and prepare graphic outputs for NRM/EPIQ reports, newsletters and other documents.
- ?? Provide technical support to the consultants preparing West Kutai's spatial plan. Specific tasks include acquiring, processing and analyzing spatial data and preparing presentation materials for public planning meetings.
- ?? Facilitate the distribution of spatial data to make them accessible to all members of the communities in Melak and Tenggarong.
- ?? Help define and institute mechanisms for districts to systematically acquire satellite imagery as one of the primary data sources for spatial planning.

Local Participatory Planning or Community Development Specialist

Level of Effort – 45 working days during the period 1st September 2000 to 31st August 2001.

Tasks:

- ?? Assist BAPPEDA in Melak organize at least 3 public meetings as mechanisms for promoting stakeholder participation in the spatial planning process. The proposed LOE is based on 15 days per meeting.
- ?? Prepare a report for each of the 3 meetings documenting the level of attendance, the degree of participation, the responsiveness of planning staff to input from participants, and lessons learned that could be used to improve subsequent meetings.
- ?? Propose other specific mechanisms for effective public participation in the spatial planning process.

Local Government Financing and Budgeting Specialist

Level of Effort – 20 working days during the period 1st October 2000 to 31st January 2001.

Tasks:

- ?? Assist BAPPEDA in Tenggarong prepare a realistic budget for its 2001 spatial planning effort in Kutai district.
- ?? Explore the potential for instituting cost-sharing mechanisms to supplement BAPPEDA spatial planning budgets.
- ?? Write a report describing the Kutai budget, recommending workable cost sharing mechanisms and identifying specific sources for supplementary funding.

NRM/EPIQ's experience working in West Kutai and Kutai has been very positive. Two dynamic Bupati's represent communities that are committed to shouldering the responsibilities decentralization will bring at the same time as they are somewhat overwhelmed by the challenges they face. Government officials, NGOs, externally funded projects, private companies and other members of the community are working well together to address those challenges. NRM/EPIQ is making significant contributions to this effort, and supporting the development of spatial planning capacity is just one way the program can continue to help foster more open and more accountable natural resources management practices in the region.

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